

ATTEMPTED SUICIDE IN ADOLESCENCE: A REVIEW AND CRITIQUE OF THE LITERATURE

Anthony Spirito, Larry Brown, James Overholser, and
Gregory Fritz

Rhode Island Hospital
Brown University Program in Medicine

ABSTRACT. *Attempted suicide among adolescents is a significant public health concern due to its frequency, coexisting physical and psychiatric problems, and economic toll. Attempters are also a high-risk group for eventual completed suicide. This review covers three major areas pertinent to attempted suicide in adolescence: characteristics of the attempt (lethality, intent, and precipitants), psychological factors associated with suicidal behavior, and follow-up course. Findings suggest there exists a significant degree of individual and family dysfunction among a large proportion of adolescent suicide attempters. However, strong evidence for the specificity of this dysfunction to suicide attempts, rather than to general emotional disturbance, was found only for hopelessness, family conflict, and contagion. In addition, the ability to devise effective interventions for adolescent suicide attempters is significantly compromised by limited knowledge of the natural course following a suicide attempt. Therefore, the need for comprehensive follow-up studies of suicide attempters should be the immediate focus of research efforts with this high-risk group.*

Attempted suicide among adolescents is a surprisingly frequent event. The exact magnitude of nonfatal adolescent suicidal behavior is difficult to estimate since relatively few receive medical treatment following their attempt (Smith & Crawford, 1986). However, several researchers, using anonymous surveys, have found that a significant percentage of high school students had made one or more suicide attempts in the past: 8.4% in the Midwest (Smith & Crawford, 1986) and 9% in New York City (Harkavy-Friedman, Asnis, Boeck, & DiFiore, 1987). The frequency of suicide attempts among adolescents is of great concern due to significant physical and psychological co-morbidity, its economic burden on the health care system, and the increased risk for completed suicide.

Although the majority of suicide attempters do not complete suicide, there is an

overlap between suicide attempters and completers in studies using clinical samples (Brent et al., 1988; Lester, Beck, & Mitchell, 1979). Such overlap can be assessed in two ways. Evidence from psychological autopsies indicates that a substantial portion of adults (Barraclough, Bunch, Nelson, & Sainsbury, 1974; Dorpat & Ripley, 1960) and adolescents (Shaffer, 1974; Shafii, Carrigan, Whittinghill, & Derrick, 1985) who completed suicide had made a prior suicide attempt. Conversely, follow-up studies show that a significant number of attempters go on to complete suicide (Goldacre & Hawton, 1985; Motto, 1984; Otto, 1972).

Completed suicide is affected by a variety of factors beyond the desire to die. An adolescent intent on committing suicide may be rescued due to unusual circumstances (e.g., parents come home unexpectedly) or because of limited accessibility to more lethal methods. Conversely, even when the adolescent does not desire to die, suicidal behavior can result in accidental death (McIntire & Angle, 1970, 1971). Many adolescent suicides can be described as a "pharmacologic roulette" (McIntire, Angle, & Schlicht, 1980): risk-taking behavior with a high probability of death by overdose. The overlap between suicide attempts and completion is a complex issue, partly related to chance factors. Nonetheless, given the fact that suicide is the second leading cause of death in persons 15 to 24 years (Rosenberg, Smith, Davidson, & Conn, 1987), efforts to understand completed suicide increasingly focus on the related problem of attempted suicide.

Our knowledge of effective interventions for adolescent suicide is also inadequate. Although there have been descriptions of intervention programs for adolescent suicide attempters (e.g., Ross & Motto, 1984), we are aware of only one controlled intervention study (Deykin, Hsieh, Joshi, & McNamara, 1986). This study, a nonrandomized intervention trial, assigned a social worker to each adolescent suicide attempter seen in an emergency room. The role of the social worker was to help the adolescents keep their follow-up appointments, to provide support, and to explore potential services available for the adolescent. In addition, an educational curriculum for schools, human service workers, health care personnel, and the police were also conducted in the targeted intervention area. Results of this study indicated that these adolescents were twice as likely as controls to comply with medical recommendations, and emergency room admissions for suicidal behaviors were reduced slightly compared to a control group. However, the program did not have a demonstrable effect on repeat suicide attempts after adjustment for prior history of suicidal behavior.

Effective interventions will await more thorough data on psychological characteristics and knowledge of postattempt course. Thus, this review will evaluate and integrate research from three areas related to suicidal behavior during adolescence: (a) characteristics of suicide attempts, (b) psychological variables, and (c) course of recovery. An effort will be made to clarify issues relevant to research and clinical work conducted with adolescent suicide attempters. In order to avoid ambiguities or disagreements, details of the research will be specified in order to clarify the possible effects of age and setting on the results of the study. When relevant, the type of setting in which the research was conducted will be clarified, since results may vary from in-patient to out-patient status and from medical settings to psychiatric hospitals. Although studies on children and adults will be occasionally reported, we will focus on research conducted with adolescent samples. This is important since it may be inappropriate to extrapolate findings from child or adult suicide attempters to adolescents. For example, many risk-taking

behaviors are common during adolescence and do not necessarily represent indirect forms of self-destructive behavior (Jessor, 1984). Furthermore, adolescents differ from adults in terms of their typical financial status, medical condition, occupational responsibilities, coping styles, social support networks, and the stressors to which they are commonly exposed. Since all of these variables may have an impact on suicidal behavior, it would be inappropriate to ignore their effects across different age groups.

FACTORS ASSOCIATED WITH SUICIDAL BEHAVIOR: LETHALITY, PRECIPITANTS, AND INTENT

Survivors of active or violent suicide attempts are at high risk to eventually complete suicide (e.g., Otto, 1972). A number of approaches have been used to rate the medical lethality of an attempt (e.g., Goldacre & Hawton, 1985; Smith, Conroy, & Ehler, 1984). The Risk-Rescue Rating Scale (Weisman & Worden, 1972) has been a commonly used method with adults, and the scale has also been used in several studies with adolescents (Brent, 1987; Garfinkel, Froese, & Hood, 1982). In Brent's (1987) study of 131 suicide attempters seen in an emergency room, those adolescents who had made a medically lethal attempt were similar to those who completed suicide (i.e. they were predominantly male, most often were diagnosed with an affective disorder, demonstrated high suicidal intent, and had a history of drug abuse).

Others examining medical lethality of adolescent suicide attempts have found a restricted range of variability on the Risk-Rescue Rating Scale (Spirito, Brown, Overholser, & Fritz, 1988). Of 130 subjects who presented to the emergency room, 65% made attempts of low risk, 33% were moderate risk, and only 2% were high risk. Similarly, Garfinkel et al. (1982) also found that 78% of the attempts were of low lethality, 21% were moderately lethal, and only 1% were highly lethal. Also, 51% made attempts with a high likelihood of rescue, and 36% with a moderate likelihood. Of concern in all these studies with adolescents is the fact that lack of variability makes it difficult to reliably score an instrument such as the Risk-Rescue Rating Scale.

The method of suicide attempt has also been investigated as an important variable among adult attempters. However, once again there is a restricted range of methods in adolescents. A number of studies (Spirito, Stark, Fristad, Hart, & Owens-Stively, 1987; Hawton, 1986; Hawton & Goldacre, 1982) consistently demonstrate that 75 to 90% of all adolescent suicide attempts are by drug overdose. At times, the attempt may be unrecognized because it involves drugs prescribed for the adolescent's medical condition (e.g., an insulin overdose by diabetic adolescents) (Kaminer & Robbins, 1988). Overdoses are nearly equally divided between over-the-counter and prescription drugs (Spirito et al., 1987), a difference that may be useful to examine in future research. It may be that impulsive suicide attempters are more likely to use over-the-counter drugs, or whatever drugs are readily available, whereas the more hopeless and dysphoric attempters are more likely to use a combination of drugs (Brent, 1987).

Although most overdoses are not fatal, it does not necessarily mean that adolescents who take overdoses do not want to die. Limited access to different methods may account for the use of nonlethal drug overdoses by adolescents. Morgan, Burns-Cox, Pocock, and Pottle (1975) have documented that adolescents most

commonly use over-the-counter drugs in suicide attempts whereas more dangerous prescription drugs are used by adults. As Shaffer and Bacon (1986) note, if intention is the same between the adults and adolescents, then, based on access to prescription drugs, one would expect more completed suicides by overdose in adults, which has indeed been found (Centers for Disease Control, 1985). Similarly, the finding that females attempt suicide by overdose may not be a reflection of less lethal intentionality, but rather a sex difference in suicide attempt method. Shaffer and Bacon (1986) refer to a study by Sathyavathi (1975) to support this contention. This study, conducted in India, where access to effective medical care may be less readily available, found female adolescents have as high a rate of completed suicide as males. Similarly, not all persons who use a very lethal method want to die. One study (Peterson, Peterson, O'Shanick, & Swann, 1985) has shown that among a group of 30 adults with self-inflicted gunshot wounds, not all had intended to die. Rather, many of these attempters had made an impulsive attempt with a method that for them was readily available.

The precipitants of suicide attempts in adolescents have also been of interest to several investigators. Tishler, McKenry, and Morgan (1981) reported the following precipitants in a study of 108 adolescent suicide attempters seen in an emergency room: parental problems (50%), girlfriend/boyfriend problems (30%), school problems (30%), sibling problems (16%), and peer problems (15%). Girlfriend/boyfriend problems, family problems, and school problems were the three most common precipitants reported by Otto (1972). In a younger sample (aged 5 to 14 years), family problems (45%) and school problems (17%) were most common (Kienhorst, Wolters, Diekstra, & Otte, 1987). However, a control group was not used in either study, thus failing to provide a normative comparison on the stressors common to most adolescents. Spirito, Overholser, and Stark (in press) studied the precipitants of suicide attempts among adolescents hospitalized on a general pediatrics floor compared to high school students reporting a problem that made them very anxious or depressed (distressed controls) or students who reported a problem which did not make them very anxious or depressed (nondistressed controls). All three groups reported four problems as occurring most frequently (school, parents, friends, or boyfriend/girlfriend problems). The suicide attempters and distressed controls reported problems with parents more frequently than nondistressed controls, while this latter group reported problems in school more frequently. Again, it appears that suicide attempters are not a distinct group from other distressed adolescents.

Given the limited range of suicide precipitants, the restricted range of methods (and consequent lethality) among adolescent suicide attempters, a more important area to investigate may be suicidal intent. The Suicide Intent Scale (Beck, Schuyler, & Herman, 1974) has been used in studies both with adults and adolescents (Brent, 1987; Garfinkel *et al.*, 1982). In a study of adolescent suicide attempters hospitalized on a general medical unit, a strong relationship has been found between depression, suicidal intent, and discharge disposition (Reuben, Boeck, & Kurzon, 1987). Unlike adults, it is common for a significant percentage of adolescent suicide attempters to deny their overdose had any suicidal implication. Gispert, Wheeler, Marsh, and Davis (1985) found that 24% of their sample of 82 adolescent suicide attempters seen on a general medical unit denied ever having any suicidal intent, and 27% admitted they wanted to kill themselves at the time of the attempt but were no longer suicidal the day following the attempt.

Others have tried to look beyond the wish to die and identify more specific explanations for suicidal behavior. For example, Hawton, Cole, O'Grady, and Osborn, (1982) asked adolescents to choose a reason for their attempt (e.g., "to get relief from a terrible state of mind," "escape," "make people feel sorry for you," and "seek help"). Such finer discriminations of suicide intent may prove clinically useful and are worthy of further investigation.

In summary, adolescent attempters vary greatly in their intent to die, and indications of intent may have some prognostic significance. Many adolescents deny suicidal intent, and clinicians need to be alert to other significant behavioral signs (e.g., specifically buying pills for the attempt). Assessment of the medical lethality of the attempt is a poor discriminator between relevant subgroups of attempters. Studies of precipitants to the attempt commonly point to conflict with parents, although this may be an indication of general distress, rather than suicide specific.

PSYCHOLOGICAL FACTORS ASSOCIATED WITH ADOLESCENT SUICIDAL BEHAVIOR

It is important to investigate psychological variables associated with suicide attempts to determine the underlying factors that increase the likelihood of a repeat attempt, continued psychiatric difficulties, and/or treatment refusal. Predisposing variables suggested to be strongly related to adolescent suicide attempts include: emotional states; cognitive variables; and behavioral, interpersonal, and environmental factors. Studies investigating these domains are discussed below.

Emotional States

Three primary emotional states have been associated with adolescent suicide attempts: depression or depressive illness, hopelessness, and anger. These factors have been found in many, but not all attempters, and their presence may predict psychiatric admission, future attempts, or be associated with general behavioral and affective arousal.

The relationship between depression and suicide attempts in adolescents has been well-investigated. Studies conducted in psychiatric hospitals find an association between depression and suicide attempts. Friedman, Corn, Aronoff, Hurt, and Clarkin (1984) found that 27 of 28 hospitalized adolescents who had made a suicide attempt had an affective disorder. Robbins and Alessi (1985) also found suicidal behavior to be highly associated with depressed mood among 64 adolescent inpatients. Carlson and Cantwell (1982) found that 30% of 102 depressed inpatient children had made a prior suicide attempt, in contrast to 18% of the nondepressed children. Crumley (1979) reported that 24 (60%) of 40 adolescent suicide attempters seen in a private psychiatric practice were diagnosed with a major depressive disorder. Two large studies have been conducted with outpatient samples. One study of black children and adolescents referred for outpatient psychiatric services (Bettes & Walker, 1986) found that a depressed mood was more common among the subjects who made suicide attempts than among those with suicidal ideation. The other study (Marks & Haller, 1977) found depression to be more prevalent among suicide attempters than a nonsuicidal, psychiatrically disturbed control group. When suicide attempters are examined in the emergency room following an attempt, high rates of both dysphoria and the associated vege-

tative symptoms are reported (Garfinkel et al., 1982; Tishler et al., 1981). Two emergency room studies based on chart review data have found that 82% of a sample of 210 adolescent suicide attempters (Christoffel, Marcus, Sagerman, & Bennett, 1988) and 69% of a sample of 173 adolescent attempters were felt to be clinically depressed (Withers & Kaplan, 1987).

In contrast to patients seen in the emergency room or psychiatric hospitals, depression is less prevalent in medically hospitalized samples. Taylor and Stansfeld (1984a), in studying 50 adolescents admitted to a medical floor following a suicide attempt, found that only 26% of their sample met strict criteria for depressive disorder. This rate was, however, significantly higher than a matched comparison group of adolescents (2%) seen in an out-patient child psychiatry clinic. Of adolescents admitted to a medical unit following a suicide attempt, the most common diagnosis was adjustment reaction with depressed mood, with a few of these adolescents meeting the criteria for major depressive disorder (Schrieber & Johnson, 1986). In a pediatric unit in which all suicide attempters were referred for psychiatric evaluation, scores on the Children's Depression Inventory were equivalent in a group of suicide attempters as compared to adolescents referred for a variety of other emotional difficulties (Spirito et al., 1987).

From the studies cited above, it appears that depression is characteristic of a substantial proportion, but not all, of adolescent suicide attempters. Rates of depression may vary depending upon the population studied, with the highest rates found in psychiatric hospitals and the lowest in medical units. Depending on admission criteria, affective disorders may be over-represented in the psychiatric unit (Friedman et al., 1984; Lawler, Nakielny, & Wright, 1963; Robbins & Alessi, 1985). Schreiber and Johnson (1986) comment that the pediatric attending's assessment of the degree of depression following an attempt often determines whether a psychiatric referral is even made and the presence of clinically significant depression may be a criteria for transfer to in-patient psychiatric care. Many adolescent attempters are not depressed and thus do not come to psychiatric attention. Other affective variables need to be investigated in these teenagers.

Hopelessness has been found to mediate the relationship between depression and suicide with adult psychiatric inpatients (Minkoff, Bergman, Beck, & Beck, 1973). In addition, a recent study (Beck, Steer, Kovacs, & Garrison, 1985) found hopelessness to be the best predictor of eventual completed suicide at 10 year follow-up in a group of adults originally hospitalized with suicidal ideation. Studies of hopelessness in adolescence have, for the most part, used psychiatric samples. In younger children, Kazdin, French, Unis, Esveldt-Dawson, and Sherrick (1983) found a relationship between hopelessness and suicidal ideation and behavior. Another study of young psychiatrically hospitalized children has also demonstrated that feelings of hopelessness are positively correlated with suicidal behavior (Asarnow, Carlson, & Guthrie, 1987). A small ($N=11$) study with teenage outpatients demonstrated that suicide attempters had a "lack of investment in the future" when compared to non suicidal psychiatric referrals (Corder, Shorr, & Corder, 1974). Two recent studies with larger samples demonstrated that hospitalized adolescent suicide attempters had significantly higher levels of hopelessness than nonsuicidal psychiatric and normal control groups (Spirito, Williams, Stark, & Hart, 1988; Topol & Reznikoff, 1982). Marks and Haller (1977), using a large outpatient sample, found that hopelessness was more prevalent in female suicide attempters than male suicide attempters, male nonsuicidal adolescents, or female

nonsuicidal adolescents. Although depression and hopelessness are closely related constructs, the data presented above suggest that hopelessness is more strongly related to suicidal behavior. It is consistently associated with suicide attempts across ages and in a variety of evaluation settings.

Anger is another variable that has been prominently discussed in connection with adolescent suicide attempts (Curran, 1987; Khan, 1987). Indeed, Menninger (1938) conceptualized suicide as stemming from either the urge to die (i.e., depressive tendencies), the urge to be killed (i.e., masochistic tendencies), or the urge to kill (i.e., aggressive/sadistic tendencies). Relatively little empirical data have been collected about anger in suicidal adolescents. Pfeffer, Plutchik, and Mizruchi (1983) have presented data supporting the idea of two subtypes of suicidal children: one displaying angry/assaultive suicidal tendencies and the other displaying suicidal behavior without aggressive behavior. However, in a large study of out-patient black children referred for psychiatric evaluation, anger was found to be the most common symptom among nonsuicidal children (Bettes & Walker, 1986).

Some adolescent suicide attempters seen in an emergency room have been found to report intense anger prior to the attempt (Withers & Kaplan, 1987) and to have exhibited a wide range of aggressive symptoms (Garfinkel et al., 1982). Furthermore, increased anger has been associated with increased seriousness of the attempt (Gispert et al., 1985) and increased probability of re-attempting (Gispert, Davis, Marsh, & Wheeler, 1987). Among first time attempters, anger was noted to take several forms, with one third of the sample demonstrating intense verbal outbursts and another third demonstrating significant acting out. Only 15% of these suicide attempters denied any feelings of anger (Gispert et al., 1987).

When investigated systematically, it appears that anger and aggressive behavior are found in a substantial proportion of adolescent suicide attempters. Anger and irritability may at times be a component of depressive disorders. Such presentation may be less indicative of character pathology and more a function of strong affective arousal which culminates in a suicide attempt. However, Pfeffer et al. (1983) found that a large proportion of childhood suicide attempters exhibit assaultive/aggressive behavior independent of depression. Since many adolescent suicide attempters are diagnosed as conduct disordered, anger as a component of oppositional behavior seems evident in many childhood and adolescent suicide attempts. Anger may be equally important in the depressed and character disordered groups; however, its underlying basis may be very different.

Cognitive Factors

Cognitive variables relevant to suicidality include problem-solving deficits, impulsive tendencies, and cognitive distortions. In many studies, suicide attempters display less adequate problem-solving abilities than either psychiatric or normal controls (McLeavey, Daly, Murray, O'Riordan, & Taylor, 1987). Such deficits have been observed in suicidal patients of all ages: children (Asarnow et al., 1987; Cohen-Sandler, 1982; Orbach, Rosenheim, & Hary, 1987), adolescents (Trautman, 1987), and adults (Schotte & Clum, 1987). Orbach et al. (1987) studied 27 psychiatrically hospitalized children between the ages of 6 to 12 years who demon-

strated either suicidal ideation or behavior. These children were compared to 25 children with chronic medical illnesses and 23 normal controls on a test designed to assess the ability to generate alternative solutions to scenarios about life and death. Suicidal children generated fewer alternatives than normal or chronically ill children. In the suicidal group, those most attracted to death were least capable of generating alternative solutions. Asarnow et al. (1987) and Cohen-Sandler (1982) found that psychiatrically hospitalized suicidal children (ages 8 to 13 years) generated fewer active coping strategies than nonsuicidal children. Trautman (1987) also found that adolescent suicide attempters generated fewer ways to solve problems than nonsuicidal psychiatrically disturbed adolescents. Levenson and Neuringer (1971) administered the Rokeach Map Reading Problem test, which requires finding short-cuts on a map and thus presumably taps the ability to flexibly reorganize problem elements. A group of 13 suicide attempters failed the test more often than nonsuicidal psychiatrically hospitalized adolescent controls, suggesting inflexibility in the problem solving of suicidal adolescents.

This lack of flexibility and rigidity in problem solving (Neuringer, 1964) may be state dependent and not a stable personality trait (Perrah & Wichman, 1987). Whether acute or chronic, cognitive rigidity may underlie many problem-solving deficits (Ellis, 1986). Finally, suicidal patients have been found to identify more negative consequences for their problem solutions than psychiatric controls (Schotte & Clum, 1987). The perceived negative consequences might discourage the implementation of the few solutions they do generate.

Impulsivity has frequently been described as a risk factor for suicide (Arffa, 1983) and a personality characteristic of adolescent suicide attempters (Crumley, 1979; Haider, 1968). Shaffer and Bacon (1986) have reported that most completed suicides among adolescents are preceded by a short period of planning. Lack of impulse control has been found to differentiate adolescent suicide attempters from a control group of adolescents with an acute illness (Slap, Vorters, Chaudhuri, & Centor, 1988). However, impulsivity does not seem to characterize all suicide attempters, since group comparisons have found no differences between suicidal patients and psychiatric controls on a measure of cognitive impulsivity (Patsiokas, Clum, & Luscomb, 1979). Instead, impulsivity may be important in identifying high risk subgroups. A one-year follow-up of suicidal patients found the repeat attempters to be more impulsive than nonrepeaters (Patsiokas et al., 1979). Furthermore, it has been suggested that impulsive suicide attempters come from families in which action supercedes verbal mediation (McCulloch & Philip, 1972) and that male adolescent suicide attempters are more often described as impulsive than female suicide attempters (Marks & Haller, 1977). Finally, impulsive suicide attempters have been found to be less depressed and less hopeless than nonimpulsive attempters (Brown, Overholser, Spirito, & Fritz, 1988; Williams, Davidson, & Montgomery, 1980). It is surprising how few studies have been conducted on the relation between impulsivity and adolescence, given the frequent reference to teenage suicide attempts as impulsive. In those studies that do exist, the distinction between impulsive cognitive style and impulsive attempts must be considered. Another problem is that the measures of impulsivity used in these studies often reflect angry and aggressive behavior as much as behavior suggesting a lack of reflection or planning.

Cognitive distortions involve maladaptive information processing patterns that

may predispose a person to focus on the negative aspects of a situation. The attributional theory of depression argues that depression results from a tendency to attribute negative events to global, internal, and stable causes (e.g., personality traits). Conversely, positive events are attributed to specific, external, and unstable causes (e.g., luck). Adolescent suicide attempters have been found to display more frequent attributional errors as compared to psychiatric controls (Hart, Spirito, & Overholser, 1988). In this study, 66 adolescent suicide attempters were compared to a group of 40 psychiatrically hospitalized adolescents on the Children's Attributional Style Questionnaire and the Children's Depression Inventory. Although the two groups did not differ on level of depression, the adolescent suicide attempters were more likely to view negative events as stable characteristics of their environment than the nonsuicidal psychiatrically hospitalized sample.

In summary, three cognitive variables are relevant to the study of suicide attempters. Problem-solving deficits, impulsiveness, and cognitive distortions appear more frequently in at least a subgroup of high-risk suicide attempters. Whether these variables are temporary states or permanent traits is less important than whether professionals can learn to accurately identify and manage these deficits when they are present. Identification of impulsiveness might appropriately lead to more intensive intervention with this particularly high-risk group of attempters. The clinician can expect that many attempters will have a cognitive style marked by a lack of flexibility, perception of overly negative consequences and a tendency to feel overly responsible for those negative outcomes. Attempts at enhancing problem solving will need to take these factors into account.

Behavioral Factors

Empirical investigations of coping in suicide attempters have focused primarily on problem solving. However, some researchers feel that deficient or maladaptive behavioral coping strategies are among the main reasons that an adolescent makes a suicide attempt in response to stress (Khan, 1987). Curran (1987) suggests that adolescent suicide attempters may lack effective coping strategies, or they may be more prone to use avoidant methods of coping, such as social isolation or substance abuse. Also, Jacobs (1971) suggests that suicide attempters employ a variety of coping strategies prior to the suicide attempt, but none of them is very successful. Only one study has examined a broad range of coping strategies in suicide attempters. In this study, 76 adolescents hospitalized on a general pediatrics unit following a suicide attempt were asked to complete a coping checklist in order to assess which cognitive and behavioral strategies they used in response to the stress which precipitated the suicide attempt (Spirito, Overholser, & Stark, in press). Two control groups that completed the coping checklist in response to a personal problem, which they had experienced in the prior month, were formed on the basis of whether or not the problem made them seriously distressed. The suicide attempters employed wishful thinking, and social isolation more often than the nondistressed controls. When compared to the distressed controls, the suicide attempters were less likely to use wishful thinking and more likely to use social isolation as coping strategies. These latter findings suggest that the use of certain types of coping strategies, whether cognitive or behavioral, may help prevent or dissuade distressed adolescents from moving toward suicidal behavior

as a possible solution. Since interventions may be designed to enhance coping, future research in this area should be encouraged.

Substance abuse may be an indication of a breakdown in coping. Rates of substance abuse among adolescent suicide attempters seen in general hospitals in the United States have been reported at 23% (Headlam, Goldsmith, Hamenson, & Rauh, 1979), 25% (Withers & Kaplan, 1987), 34% (Schrieber & Johnson, 1986), and 42% (Christoffel et al., 1988). Two studies included control groups (Garfinkel et al., 1982; McKenry, Tishler & Kelly, 1983) and found rates of substance abuse significantly higher in the attempter groups. However, Spirito et al. (1987) found that the rate of substance abuse in attempters (31%) was not significantly different from the rate in nonsuicidal adolescents referred for a psychiatric evaluation (24%). Studies in Britain (Hawton, 1986) report very low incidence of drug abuse among adolescent suicide attempters, perhaps reflecting different patterns of drug use across the countries. Only one study (Garfinkel et al., 1982) has reported the rate of alcohol/drug abuse at the time of the attempt (11.3%). Unfortunately, adolescent suicide attempters seen in typical emergency rooms are not consistently asked whether they use drug or alcohol on a regular basis (Rockett, Spirito, Fritz, & Riggs, 1988), with emergency room charts recording information on substance abuse in less than 1/3 of cases (Christoffel et al., 1988).

The importance of drug abuse in lethal actions is underscored by Brent, Perper, and Allman (1987), who found that adolescent suicide victims who used firearms (a highly lethal method) were much more likely to have been drinking than those who chose other methods. Strong correlations between suicidal behavior and alcohol/drug abuse have been reported in attempters in inpatient psychiatric settings (Robbins & Alessi, 1985).

The studies cited above suggest that substance abuse is a salient characteristic of adolescent suicide attempters. Drug and alcohol use may reflect a maladaptive coping strategy, general psychopathology, family disturbance, or self-destructive behavior, rather than being specific to suicidal behavior. Nevertheless, high rates of abuse are reported, and such abuse is correlated with highly lethal attempts, so that complete drug histories are mandatory in the evaluation of a suicide attempter. Interventions targeted at reducing drug use, if successful, may also lower the rate of attempted suicide among adolescents.

Interpersonal Factors

Clinical impressions and case reports have suggested that impaired social skills and poor peer relationships can lead to suicide attempts in adolescents (Crumley, 1979; Curran, 1987; Teicher, 1979). Adolescent suicide attempters hospitalized on a psychiatric floor have been found to display less adequate peer relationships than a psychiatric control group (Stanley & Barter, 1970). Rohn, Sarles, Kenny, Reynolds, and Heald (1977) reported that 50% of a sample of 65 adolescent suicide attempters seen in an emergency room described themselves as "loners" or being socially isolated before their suicide attempt, a finding especially true for the male attempters. Also, patients who re-attempted suicide following discharge from the hospital had reported significantly less frequent peer interactions as compared with one-time attempters (Barter, Swaback, & Todd, 1968; Stanley & Barter, 1970). Psychiatrically hospitalized adolescent suicide attempters have re-

ported more frequent and more serious peer problems than either nonsuicidal psychiatric patients or nonhospitalized controls (Topol & Reznikoff, 1982). Jacobs (1971) reported an escalation of peer problems and increased social isolation for adolescent suicide attempters compared to a control group of high school students.

Social adjustment problems in suicide attempters may be limited to psychiatric samples. Khan (1987) found no differences between psychiatrically hospitalized suicide attempters and nonsuicidal outpatient psychiatric controls on the frequency of peer problems. However, both groups had a very high rate of peer difficulties, with 72 to 87 percent of the adolescents reporting no friendships. Yusin, Sinay, and Nihira (1972) found that suicidal adolescents had more same-age friends than other adolescents with psychiatric difficulties. The suicidal adolescents did report, however, that they were less interested in being the leaders of peer groups than the other adolescents interviewed. In contrast, Tishler et al. (1981) found only 15% of 108 adolescent suicide attempters seen in an emergency room reported experiencing social isolation. Similarly, in a general hospital sample in Britain, social isolation was present in only 28% of a sample of adolescents who made a suicide attempt by drug overdose (Hawton, Osborn, O'Grady, & Cole, 1982b). Fourteen percent of these adolescents also reported substantial peer conflict. In another general hospital sample of suicide attempters, no difference in self-report of social skills was found between the suicide attempters and a comparison group of psychiatric inpatients (Spirito, Overholser, Hart, & Halverson, 1988). However, social skill deficits were a function of level of depression in both the suicide attempters and the psychiatric patients, with the more depressed patients reporting greater social skill deficits.

Thus, there is conflicting literature regarding the relevance of social factors in the genesis of adolescent suicide attempts. The mechanism through which these factors may exert their influence is a matter of speculation. Social failure may be a stressful precipitant of the actual attempt or a marker of an adolescent's interpersonal functioning (Curran, 1987). Alternatively, the suicide attempt can be construed as a form of interpersonal coercion (Zich, 1984) used by individuals lacking more adaptive ways to satisfy their interpersonal needs. Finally, a suicide attempt may be the result primarily of depression, with social skill deficits contributing to the depression rather than directly to the suicide attempt (Lewinsohn, 1975; Spirito, Overholser et al., 1988).

Environmental Factors

Family. The relation between family functioning and adolescent suicidal behavior has been explored in many lines of research. Prominent areas of clinical investigation include family violence, physical/sexual abuse, disturbed family functioning, family psychiatric history including drug/alcohol abuse, and rates of separation/divorce.

Aggressive behavior has been noted in both the suicide attempters' overt behavior and also in their background histories. Family aggression is particularly prominent in samples of suicidal children (Kosky, 1983; Pfeffer et al., 1983). Frequent exposure to family violence has been seen in suicide attempters (Hawton et al., 1982b; Paulson, Stone, & Sposto, 1978; Withers & Kaplan, 1987). Although these studies did not use control groups, several controlled studies also support

this finding. Green (1978) found a greater percentage of self-destructive behavior, including suicide attempts, among 59 physically abused children (50%) compared to 17% in neglected children and 7% in normal controls. In a study conducted on an inner city general medical unit (Levin & Schonberg, 1987), suicide attempters were more likely than controls to be exposed to a variety of violent behaviors, including: wife battering, a primary family member convicted of a violent crime, and physical abuse. Jacobs (1971) found adolescent suicide attempters to be subject to more severe disciplinary techniques than normal controls, while Korella (1972) found discipline in the families of suicide attempters less likely to be characterized by reasoning and exploration, as compared to controls.

In view of the significant levels of family aggression, it is understandable that studies report a significant rate (approximately 30%) of antisocial behavior in childhood and adolescent suicide attempters (Pfeffer, Solomon, Plutchik, Mizruchi, & Werner, 1982; Tuckman & Connon, 1962; Walker, 1980). Diagnoses of conduct disorder have also been found in 20% (Taylor & Stansfeld, 1984a) and 33% (Schrieber & Johnson, 1986) of adolescent suicide attempters on a medical service. Of course, not all adolescents with conduct disorders go on to make suicide attempts. One study compared 30 delinquents who had made a suicide attempt with 120 delinquent nonsuicidal controls (Miller, Chiles, & Barnes, 1982). Female delinquents were much more likely to attempt suicide than male delinquents, especially when depressed. Males and females who displayed high levels of acting out were equally likely to attempt suicide.

A high rate of sexual abuse, approximately 16%, has also been reported in general hospital emergency rooms (Levin & Schonberg, 1987; Withers & Kaplan, 1987). This rate of abuse is higher than that of a nonpsychiatric control group (Levin & Schonberg, 1987), with even more dramatic differences noted by Deykin, Alpert, and McNamara (1985). Spirito et al. (1987) studied suicide attempters admitted to a general pediatrics floor, but did not find differences on history of physical or sexual abuse between the attempters and a control group of medical patients referred for psychiatric evaluation.

Other studies indicate overt conflict between parent and the suicidal adolescent as well as substantial communication problems in the entire family (Hawton, O'Grady, Osborn, & Cole, 1982a; Wenz, 1979). Difficulties in family relationships were found to differentiate suicide attempters from normal controls (Williams & Lyons, 1976) and adolescents hospitalized with an acute illness (Slap et al., 1988). In addition, a number of studies (Corder et al., 1974; Khan, 1987; McKenry, Tishler, & Kelley, 1982; Taylor & Stansfeld, 1984a; Topol & Rezninoff, 1982; Williams & Lyons, 1976) using control groups composed of psychiatric samples have documented more disturbed family functioning in the families of the adolescent suicide attempter.

Beyond conflictual family relationships, studies have examined the history of psychiatric disorders among family members. Garfinkel et al. (1982) found that 50% reported a family history of psychiatric disorders compared with 16% of the control group. Alcohol and drug abuse were the most common difficulties reported by parents, a finding supported by other studies (Cohen-Sandler, Berman, & King, 1982a; Rohn et al., 1977). Studies using clinical comparison groups (i.e., suicidal psychiatric inpatients compared to nonsuicidal depressed inpatients) do not find a difference between the suicide attempters and nonsuicidal depressed inpatients in the rate of family psychiatric disorder (Carlson & Cantwell, 1982;

Friedman, Corn, Hurt, et al., 1984). However, Friedman, Corn, Hurt, et al. (1984) found that chronic psychiatric illness of a parent before the child reached age 14 was more common among depressed suicide attempters than nonsuicidal depressed adolescents. Similar findings were obtained in a sample of 46 suicide attempters seen in an emergency room when compared to a medical control group (Tishler & McKenry, 1982). This study indicated that fathers of attempters displayed higher levels of depression, a lower self-esteem, and greater alcohol use than fathers of nonattempters. High rates of attempted suicide, for example 28% in the Kienhorst et al. (1987) study, have been found in the family members of adolescent suicide attempters. These higher rates of suicide attempts and completions among family members have been confirmed in studies with normal control groups (Garfinkel et al., 1982; Jacobs, 1971) but not psychiatric control groups (Stevenson et al., 1972). A number of studies indicate that adolescent suicide attempters frequently have parents who have been divorced or separated (Barter et al., 1968; Choquet, Facy, & Davidson, 1980; Christoffel et al., 1988; Dorpat, Jackson, & Ripley, 1965; Hawton et al., 1982b; Rohn et al., 1977; Stanley & Barter, 1970; Tishler et al., 1981; Walker, 1980). The observed rate is consistently greater than that in control groups of normal adolescents or adolescents on a medical service (Garfinkel et al., 1982; Jacobs, 1971). However, when adolescents with other psychiatric difficulties are used as a comparison group, several studies have found no difference in the rate of family breakdown across groups (Mattson, Seese, & Hawkins, 1969; Spirito et al., 1987; Stanley & Barter, 1970). In addition, these studies have not controlled for potential confounding factors, such as parent age (Shaffer, 1982). Nonetheless, parental divorce and separation appear to be risk factors for the development of emotional distress in adolescents, although not specifically suicidal behavior. Overall, family disturbance seems to be prominent in the histories of adolescent suicide attempters. Overt conflict in the family seems to be the major area that differentiates suicide attempters from psychiatric comparison groups. More in depth study of the patterns of family conflict, such as that conducted by Taylor and Stansfield (1984a) which found a higher rate of father/daughter conflict in suicide attempters than in a control group, will be an important area of future research.

The above studies are very consistent in supporting the belief that the families of adolescent suicide attempters are characterized by substantial levels of dysfunction. This dysfunction includes physical abuse (between parents and between parent and adolescents) and excessive discipline; sexual abuse of children in the family; marital conflict, such as communication difficulties, separation, divorce, and remarriage; more disturbed overall family functioning. Studies also consistently indicate high rates of significant psychiatric disorders in immediate and extended family, including suicide attempts and completions, which may subsequently predispose these families to the high rates of dysfunction described above. These findings underscore the importance of understanding family functioning in the evaluation and treatment of adolescent suicide attempters.

Stressful Life Events. The presence and severity of stressful life events have been related to increased depression and suicidality (Paykel, 1980). Previous research with adults has shown that suicide attempters report significantly more stressful events as compared to depressed patients, and depressed patients report significantly more events than psychiatric controls (Paykel, Prusoff, & Myers, 1975).

Most importantly, the frequency of such events tends to increase sharply during the month prior to the suicide attempt (Paykel et al., 1975). This suggests that presence of a high number of stressful life events may be an important contributor to a suicide attempt.

Most of the research on stress and suicide has been conducted on adult samples (e.g., Luscomb, Clum, & Patsiokas, 1980). While adolescence is typically a period of stress and turmoil, the exact relationship between stress and adjustment during this period is unstudied (Compas, 1987). Whereas prospective studies of adults suggest that stresses are simply additive; similar studies of adolescents suggest that stresses cause psychological symptoms which may set the style for further difficulties. For example, presence of depression in an adolescent, while triggered by an unrelated event (e.g., academic failure), may lead to socialization difficulties and social ostracism. A negative cycle may develop whereby psychological symptoms elicit more negative events, which serve to exacerbate the level of emotional distress. To better examine these relationships, use of relevant control groups is especially important when examining stress in adolescents.

Increased levels of life stress in suicidal adolescents have been reported by Gispert et al. (1985) and are observed even when adequate control groups are employed. Jacobs (1971) found that adolescent suicide attempters had more major life events from early to mid-adolescence than a sample of normal controls. Cohen-Sandler et al., (1982a) evaluated the medical records of 76 children (aged between 5 and 14 years) who had been hospitalized for psychiatric problems. Records were assessed for the severity of life stressors and psychiatric symptomology. Results showed that the suicidal children, as compared to depressed and psychiatric control children, were found to experience more stressful life events. Consistent increases in stress were observed over the developmental lifespan only for suicidal children. Stressors were especially prominent during the year prior to the suicide attempt. Depressed children were more likely to suffer peer rejections, while the suicidal children experienced more social losses (the loss of a loved one through death, divorce, or relocation). Thus, presence of stressful life events, especially social exit events, seems to have important implications for understanding suicide attempts in children and adolescents.

Physical illness is an example of a more enduring life circumstance which has been associated with an increased risk of suicide. In adults, a physical illness was present in 34% of 3,338 completed suicides (Whitlock, 1986). Rates of psychiatric disorder have been reported as higher in physically ill children and adolescents (Cadman et al., 1987; Goldberg, Regier, McAnganey, Pless, & Roghmann, 1978; Walker, Gortmaker, & Weitzman, 1981). However, studies comparing rates of chronic illnesses and completed suicide among children and adolescents are limited, at least partially because the rates for both are low compared to adults. Several reports have noted relatively high rates of physical illness among cohorts of child and adolescent suicide attempters. Hawton et al. (1982a) found that "about a third" of their sample of 50 attempters had an unspecified physical disorder, a rate similar to that reported by Choquet et al. (1980) in France. In a review of emergency room records in Canada, Garfinkel et al. (1982) also found a significantly higher rate of physical illness in their suicide sample (54%) than a control group (43%). One-third of 210 suicide attempters seen in a general hospital reported a history of chronic disease (Christoffel et al., 1988). Only one study has described the frequency of a particular physical disorder among adolescent suicide

attempters. Brent (1986) found that 9 of 126 consecutive suicide attempters had a seizure disorder, a rate he calculated as 15 times greater than expected. These patients made more serious attempts with greater premeditation than the other suicide attempters.

In summary, the existing research on the pediatric age group is scant and nonspecific, but it tends to support the importance of chronic physical illness in the background of adolescent suicide attempters. Whether the impact is mediated through reactive depression, organic changes in the central nervous system, or the familial and social responses to chronic illness has not been adequately explored.

While research on stressful life events may facilitate our understanding of adolescent suicide, more research is needed to identify relevant mediating variables that act as protective mechanisms versus those which exacerbate the adverse effects of life stress (Rich, Fowler, Fogarty, & Young, 1988). In this way, intervention models will be improved and the risk of suicide in adolescence may be reduced.

Contagion and Imitation. Although newspapers and magazines report occasional clusters of adolescent suicide or attempts, there are few detailed case reports in the psychiatric literature. Robbins and Conroy (1983) reported a cluster of attempts following two adolescent suicides in the suburban New York City area. The two suicides were separated by three months and then followed by five attempts and one serious suicidal threat, all in students in the same high school. Given the knowledge students had of one another, including visiting each other during hospitalization, imitation was likely an important factor.

A relationship between media coverage of suicides and subsequent suicide attempts, completed suicide, or automobile fatalities is implied by several studies. Bollen and Phillips (1982) found an increase in adult suicide following highly publicized television news stories, with the effect lasting 10 days. Phillips (1979) described a relationship between newspaper reports of suicide and motor vehicle fatalities in California. Three days after a front page story, automobile fatalities were 31% greater than expected. More widespread publicity was associated with a greater increase of fatalities. Also, age of the driver was significantly correlated ($r = .46$) with age of person in the suicide story. Several other studies have focused specifically on adolescents. Phillips and Carstensen (1986) found an increase in national adolescent suicides following 38 televised news stories (1973–1979). Greater coverage of the story was associated with a greater increase in suicide and the increase was most noticeable in adolescents, rather than adults. The data were consistent with imitation as a factor in these suicides and did not support other explanations such as: precipitation of suicide that would have occurred anyway, misclassification, seasonal effects, or the effect of grief over death of an admired person. A relationship between suicide and television movies about suicidal youth was found in Gould and Shaffer's study (1986). In the two weeks following three such movies they reported an increase in both attempts and completed suicide in the New York City area. Phillips and Paight (1987) examined completed adolescent suicides in California and Pennsylvania following the same movies and were unable to replicate the finding. It was postulated that since the movies were only shown on one television station, effects were not likely to be widespread.

There is also a fair amount of data indicating that there are models for suicidal behavior within the family and social networks of suicide attempters. Two studies

have identified suicide attempters through surveying high school students (Harkavy-Friedman et al., 1987; Smith & Crawford, 1986). Both studies found that suicide attempters were more likely than suicide ideators and nonsuicidal students to know a friend or peer who had attempted suicide. Harkavy-Friedman et al. (1987) also found that suicide attempters and suicide ideators were more likely to know a family member with suicidal behavior than nonsuicidal students. In emergency room samples, 22% of the adolescent suicide attempters in one study reported a family member who had exhibited suicidal behavior (Tishler et al., 1981), while 11% reported a family history of suicide in another study (Christoffel et al., 1988). Jacobs (1971) found a much higher incidence of attempted or completed suicide in the relatives and friends of adolescent suicide attempters compared to normal controls. Garfinkel et al. (1982) found a rate of suicidal behavior in the families of adolescent suicide attempters seven times higher than that of medical patients. Sixty percent of completed adolescent suicides had a sibling or friend who attempted or completed suicide. This was significantly higher than the controls (12%), a group composed of the closest friends of the victim. However, there was no difference between the two groups in family history of suicidal behavior. Further studies using clinical comparison groups will be needed to determine whether this is specific to suicide attempters or a general characteristic of psychiatrically disturbed adolescents. More data will help determine whether family models play a primary role in an adolescent's suicide attempt or if family psychiatric history or family models are the more relevant contributing factors in an adolescent's suicide attempt. If peer models play a larger role than family models, differential social aggregation may better account for adolescent suicidal behavior.

In summary, there are some data that suggest imitation (via friend, family or television) as a relevant factor in adolescent suicide. Suicidal impulses in this group "wax and wane" so that changes in the opportunity for suicide, the means for suicide, or the motivation for destruction, have a real impact (Eisenberg, 1986). The variation in suicide rates imply that although imitation exists, its impact on national trends is small.

POST ATTEMPT COURSE

Table 1 summarizes follow-up studies conducted with adolescent suicide attempters. Information not contained in the table is discussed in this section. Areas that will be elaborated on include treatment attendance, repeat attempts, prediction of repeaters, and predictions of completed suicide.

Data suggest that approximately half of all suicide attempters do not receive any formal psychotherapy, although the rate appears higher in younger adolescents (Kienhorst et al., 1987). Several reasons have been cited for this failure of adolescent suicide attempters to attend and complete treatment. First, Hawton (1986) suggests that, unlike adult suicide attempters, most adolescents do not make a suicide attempt in the hopes of obtaining formal psychiatric care. In one study, one half of the referral failures reported that the emergency room visit had a positive effect and no further intervention was needed (Mattson et al., 1969). Second, Berman and Carroll (1984) believe that psychopathology of the parents as well as frequent denial of the seriousness of the attempts by parents is a primary hinderance to adolescents receiving appropriate psychotherapy following a sui-

TABLE 1. Follow-up Studies of Adolescent Suicide Attempters

Citation	Subjects	% of Sample Re-contacted	Age At Attempt	Setting	Control Group	Time between Attempt and Follow-up	Treatment Compliance	Repeat Attempters	Suicide Completers
Mattson, Scese, & Hawkins (1969)	Attempters (N=48); Threateners (N=27)	Not Reported	7 to 18 yrs	Psych Clinic	Yes	3 to 34 months; Mean = 17 months	53% of 30 outpt referrals	40%	None
Morrison & Collier (1969)	28 F 6 M	—	65% of Sample Between 15-17 yrs	Psych Clinic Emergency (Service)	None	—	23%	—	None
Otto (1972)	1727	—	10 to 21 yrs	Swedish National Health Service Data	Yes	10-15 Years	—	—	N=67
Paerregaard (1975)	27	Not Reported	0-19 Years	General Hospital	None	10 Years	—	—	None
McIntire, Angle, Wikoff, & Schlict (1977)	26	52%	14-18 Years	Psych Hospital	None	6 months to 2 years	35% Remained in treatment for 2 months or more	31%	None
Hawton, O'Grady, Osborn, & Cole (1982a)	50	Not Reported	13-15 yrs (N=25) 16-18 yrs (N=25)	General Hospital	None	1 year	—	14%	None

(continued)

TABLE 1. Continued

Citation	Subjects	% of Sample Re-contacted	Age At Attempt	Setting	Control Group	Time between Attempt and Follow-up	Treatment Compliance	Repeat Attempts	Suicide Completers
Mehr, Zeltzer, & Robinson (1981, 1982)	7	9%	Mean = 15.0 yrs	Pediatrics Floor	Yes	2 to 8 yrs	—	51%	None
Cohen- Sandler, Berman, & King (1982)	20	96%	5 to 14 yrs	Psych Hospital	Yes	Mean = 17 mo	84%	20%	None
Angle, O'Brien, & McIntire (1983)	15	32%	12-18 yrs	Psych Hospital	None	9 yrs	—	N=7 (47%)	None
Litt, Cuskey, & Rudd (1983)	27	Not Reported	10 to 17 yrs	Emergency Rm. Pediatric Floor	None	1 yr	39%	—	None
Motto (1984)	122 males; Attempters, N=76; Ideators/ Depressed, N=46	—	10-19 yrs	Psych Hospital	None	4 to 10 yrs	—	—	N=11 (9%)

Taylor & Stansfield (1984)	50	Not Reported	8 to 17 yrs	Pediatrics Floor	None	Not Reported	$N=28$ (56%) Kept initial appointment	—	—
Goldacre & Hawton (1985)	2492	—	12 to 20 yrs	General Hospital	None	1 to 5 yrs Average 2 to 3 yrs	—	6.3% within 1 yr; 9.5% over entire follow-up period	$N=6$
Gispert, Davis, Marsh, & Wheeler (1987)	81	—	12 to 18 yrs	Pediatrics Floor	One time attempters vs. multiple attempters	Not applicable	—	47%	—
Kienhorst, Wolters, Diekstra, Otte (1987)	12 M 28 F	—	5 to 15 yrs (87% 12 to 15 yrs)	Psychiatric and General Hospitals and Clinics	None	—	90%	—	2
Trautman & Rotheram (1987)	76	Not Reported	6 to 17 yrs	General Hospital	None	Not Reported	14% — None 38% — 1-2 appointments; 32% — 6 or more appointments	—	—
Kotila & Lonnquist (1988)	422	Not Reported	15 to 19 yrs	General Hospital	None	5 yrs	—	—	Boys ($N=5$) Girls ($N=3$)

cide attempt. Taylor and Stansfield (1984b) reported that parental attitudes and background were more important predictors of attendance for treatment than characteristics of the treatment itself. Third, dissatisfaction or ineffectiveness of previous psychiatric treatment may also play a role in referral failures. Since studies (e.g., Litt, Cuskey, & Rudd, 1983) suggest that referral failure is particularly problematic in adolescents who made a prior suicide attempt, it is possible that failure of initial treatment may make repeaters reluctant to seek additional treatment. Indeed, Mattson et al. (1969) reported that 29% of the mothers of these children reported dissatisfaction with the original emergency services received and were thus reluctant to continue treatment. Since nonsuicidal adolescents have been shown to attend relatively few psychotherapy sessions (Tolan, Ryan, & Jaffe, 1988), controlled studies are needed to determine if suicide attempters are less compliant with treatment than other adolescent psychotherapy patients.

Lower repetition rates are often found in studies with shorter follow-up times (Goldacre & Hawton, 1985) and younger suicide attempters (Cohen-Sandler, Berman, & King, 1982b). The higher repetition rates tend to be associated with studies using longer follow-up periods (Mattson et al., 1969) and with suicide attempters who had been psychiatrically hospitalized, while the lower rates seem to be associated with general hospital samples. The methodological rigor of most follow-up studies is compromised by difficulties in successfully contacting patients, (Nardini-Maillard & Lamane, 1980) as reflected in some of the low percentages noted in Table 1.

While clinically important, identification of high-risk periods following the initial attempt have received little attention. It has been suggested that the first few months after an attempt is the greatest risk period for future attempts (Goldacre & Hawton, 1985). Such findings are confounded by the higher probability of contacting a subject over a short follow-up period and thus the increased attempts may reflect better enrollment. Conversely, the longer the follow-up period, the greater the likelihood of a reattempt due simply to the longer period of time sampled.

When data from the first attempt are re-examined, repeaters compared to nonrepeaters are more likely to have had difficulties in school, a greater number of life stresses, more serious suicidal intent, elevated anger levels and dysphoria than nonrepeaters (Gispert et al., 1987). In a study conducted in France, high risk for repetition was associated with persons who were diagnosed as having a psychiatric disorder. The high risk group also had at least three of the following variables operating in their lives: a large family, alcoholism in the family, disturbed family interaction patterns, poor school performance, and depressive tendencies (Choquet et al., 1980). Other factors felt to characterize repeaters have included: males, especially older teenagers from 16 to 20 years (Goldacre & Hawton, 1985); chronic difficulties such as conduct problems and behavior disturbance (Hawton, Osborn, O'Grady, & Cole, 1982b); and an established history of prior suicide attempts (Hawton, 1986).

Another reason for difficulties in prediction may be that the post-suicidal state is different than the suicidal state. Adolescents may present quite differently in the evaluation setting than in future situations which might result in suicidal thoughts and behavior (Rotheram, 1987). Some degree of overprediction is not considered problematic to many investigators because of the serious consequences of a false

negative prediction. However, overprediction means that many adolescents will be followed closely or receive intervention which, in cost/benefit terms, may be unnecessary. More in-depth studies of the course following the suicide attempt are needed if the adolescents are to receive appropriate interventions in a cost-effective manner.

The third major area of interest in follow-up studies has been to determine the rate of and predictors of successful suicide among prior suicide attempters. Several predictors have been discussed. Boys are much more likely to complete suicide than girls (Goldacre & Hawton, 1985; Otto, 1972). Other predictor variables include an active (e.g., hanging, shooting) method of attempting suicide at the initial attempt (Otto, 1972). Of the variables assessed during an initial psychiatric hospitalization, the ones most predictive of eventual completed suicide were poor communication of suicidal intent and fear of "going crazy," negative attitude towards the initial diagnostic interview, greater financial resources, severe feelings of hopelessness, apathy, and hypersomnia (Motto, 1984).

Although suicide attempters compose a high risk group for eventual completed suicide, the characteristics of suicide completers are different from suicide attempters. Thus, follow-up studies should not only determine who is at risk for eventual completion of suicide, but also those at risk for continued psychiatric morbidity. Nonetheless, there is sufficient evidence to conclude that a suicide attempter is at much higher risk for eventual completed suicide than an adolescent or young adult without prior suicidal behavior. Indeed, Brent et al. (1988), in a study comparing adolescent suicide victims with psychiatrically hospitalized suicide ideators/attempters, found substantial overlap between the two groups on suicidal precipitants, range of psychiatric diagnoses, previous suicidal behavior, exposure to suicide, and family history of psychiatric disorder and suicide.

CONCLUSIONS

Several major conclusions can be drawn from the studies on adolescent suicide reviewed above. The medical lethality and method of suicide attempts were found to lack descriptive utility due to the restricted range of variability. Most adolescents take overdoses of low lethality in response to a problem with their parents, boyfriend/girlfriend, or school. However, more detailed examination of suicidal intent and precipitants may be useful in discriminating amongst adolescent suicide attempters. There are only three psychological variables (hopelessness, family functioning, and contagion) where an adequate empirical basis exists. A variety of studies point to hopelessness as a prominent factor in the psychological state of suicide attempters. Although highly correlated with depression, hopelessness adds an important dimension to the evaluation of suicide attempters and should be routinely assessed. Future research will be needed to determine when the level of hopelessness places an adolescent at high risk for further attempted or completed suicide.

The family functioning of adolescent suicide attempters is usually characterized by disturbed family communication and a significant degree of overt conflict in the family. There is some evidence to suggest that this family conflict is greater for the suicide attempters as compared to other psychiatrically disturbed adolescents. Thus, when evaluating a suicide attempter, it is important to explore the family's pattern of communications and conflict resolution that may precipitate their ado-

lescent's suicide attempt. Future research might profitably focus on the development of a brief family intervention that specifically addresses these dysfunctional elements.

Contagion is the third major area with significant research support. Completed suicide and suicide attempts by adolescents seem to have a significant impact on their peers. Reduction of social restraints that occurs with publicized suicides may be especially important in adolescents. That is, imitation of suicide attempts among adolescents seems to occur after notoriety is gained by similar behavior. Although the impact of contagion on overall suicide rates is relatively small, it certainly has a significant impact on the communities in which such imitation occurs. The development of effective programs, including postvention programs (Hill, 1984; Lamb & Dunne-Maxim, 1987) in schools, may help halt imitation suicides, and should be another important area of research in the future.

There are also two additional areas—interpersonal problem solving and attributional style—in which at least one study has documented significant deficits among suicide attempters as compared to psychiatric controls. Thus, exploration of the cognitive characteristics of suicide attempters holds some promise for delineating the psychological characteristics specific to suicide attempters. There are a number of areas in which research has failed to identify differences between suicide attempters and psychiatric controls. The groups do not differ in the reported rates of depression, substance abuse, history of sexual abuse, marital separations/divorce, or history of psychiatric disturbance. Mixed results have been found in the social realm. It appears that differences in peer relationships do exist, but deficits in the specific social skills which contribute to peer relationships do not appear to differentiate suicide attempters from psychiatric controls. Comparative studies have yet to be conducted with regard to several variables, including anger, impulsivity, rates of family violence, and family models of suicide. Such research is needed to adequately determine whether these risk variables are associated with adolescent suicide.

Our knowledge of the adolescent suicide attempter's psychological status is confounded by the heterogeneity of the population. For example, when adolescent suicide attempters are studied in the emergency room, on a pediatric floor, at a psychiatric outpatient clinic, or in a psychiatric hospital, four different groups of patients are being investigated. Some areas of overlap exist, but there are many important differences between groups of patients found in each clinical setting and definitive conclusions are thus impossible. Categorizing adolescent suicide attempters by relevant factors (e.g., setting of evaluation or diagnosis) will be important in future research. Several attempts at classification systems have been described (Brent, 1987; Choquet et al., 1980; Greuling & DeBlassie, 1980; Hawton et al., 1982b; Khan, 1987; Ryan et al., 1987). Yet, few empirical studies have examined the psychological characteristics of suicide attempters using such classification systems, or have tried to differentiate meaningful subgroups of suicide attempters by other criteria.

Age-related changes should also be taken into account. Findings with child suicide attempters (i.e., below the age of 13) should not necessarily be construed as support for the same mechanisms operating in adolescents, given the significance of developmental change. Studies that compare young adolescent and latency age suicide attempters to mid-adolescent and older adolescent suicide attempters are rare (e.g., Triolo, McKenry, Tishler, & Blyth, 1984) and needed.

Follow-up studies suggest that approximately half of all adolescent suicide attempters improve psychologically following a suicide attempt. Somewhere between 5% to 40% of suicide attempters will make another suicide attempt, with the higher rates occurring among psychiatrically hospitalized adolescents. Treatment attendance is a major problem; one-half of adolescent suicide attempters never receive out-patient psychotherapy. The need for more thorough longitudinal studies with suicide attempters is crucial so that psychological factors assessed at the time of the attempt can be related to future functioning and frequency of repeat attempts. Such research will help distinguish the psychological variables that are temporary postsuicidal states from the more enduring characteristics of the individual. Delineating differences between state and trait variables may help predict the most effective intervention. Given the difficulties of keeping adolescent suicide attempters and their families in treatment, follow-up studies will also help us prioritize those attempters who are most in need of psychiatric intervention.

The foregoing review reveals a relative absence of theoretical models for understanding adolescent suicidal behavior. Applying and testing such models will be important to advance our understanding relevant to the prediction and treatment of adolescent suicide. In addition, examination of the mechanisms that protect adolescents from further attempts is of extreme interest.

Adolescent suicide attempters are a high-risk group for continued psychiatric morbidity and repeat attempts. Our ability to develop effective interventions will hinge on at least three major developments in the area: (a) The development of comprehensive theoretical models of adolescent suicidal behavior; (b) the use of appropriate clinical comparison groups so that findings specific to suicide can be determined; and (c) the collection of data from prospective follow-up studies in which psychological states can be related to future functioning.

REFERENCES

- Angle, C. R., O'Brien, T. P., & McIntire, M. S. (1983). Adolescent self-poisoning: A nine-year follow up. *Development and Behavioral Pediatrics*, 4, 83-87.
- Arffa, S. (1983). Cognition and suicide: A methodological review. *Suicide and Life-Threatening Behavior*, 13, 109-121.
- Asarnow, J. R., Carlson, G. A., & Guthrie, D. (1987). Coping strategies, self-perceptions, hopelessness, and perceived family environments in depressed and suicidal children. *Journal of Consulting and Clinical Psychology*, 55, 361-366.
- Barracough, B., Bunch, J., Nelson, B., & Sainsbury, P. (1974). A hundred cases of suicide: Clinical aspects. *British Journal of Psychiatry*, 125, 355-373.
- Barter, J. T., Swaback, D. O., & Todd, D. (1968). Adolescent suicide attempts: A follow-up study of hospitalized patients. *Archives of General Psychiatry*, 19, 523-527.
- Beck, A. T., Schuyler, D., & Herman, I. (1974). Development of suicidal intent scales. In A. T. Beck, H. L. P. Resnik, & D. J. Lettiere (Eds.), *The prediction of suicide* (pp. 45-56). Philadelphia: Charles Press.
- Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: A 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry*, 142, 559-563.
- Berman, A. L., & Carroll, T. A. (1984). Adolescent suicide: A critical review. *Death Studies*, 8, 53-63.
- Bettes, B. A., & Walker, E. (1986). Symptoms associated with suicidal behavior in childhood and adolescence. *Journal of Abnormal Child Psychology*, 14(4), 591-604.
- Bollen, R. A., & Phillips, D. P. (1982). Imitative suicides: A national study of the effects of television news stories. *American Sociological Review*, 47, 802-809.
- Brent, D. A. (1986). Overrepresentation of epileptics in a consecutive series of suicide attempters

- seen at a children's hospital, 1978–1983. *Journal of the American Academy of Child Psychiatry*, **25**, 242–246.
- Brent, D. A. (1987). Correlates of the medical lethality of suicide attempts in children and adolescents. *Journal of American Academy of Child and Adolescent Psychiatry*, **26**, 87–91.
- Brent, D. A., Perper, J. A., & Allman, C. J. (1987). Alcohol, firearms, and suicide among youth: Temporal trends in Allegheny County, Pennsylvania, 1960 to 1983. *Journal of the American Medical Association*, **257**, 3369–3372.
- Brent, D., Perper, J., Goldstein, C., Kolko, D., Allan, M., Allman, C., & Zelenak, J. (1988). Risk factors for adolescent suicide: A comparison of adolescent suicide victims with suicidal inpatients. *Archives of General Psychiatry*, **45**, 581–588.
- Brown, L., Overholser, J., Spirito, A., & Fritz, G. (1988, October). *Impulsivity in adolescent suicide attempters*. Poster presented at the 35th Annual Meeting of the American Academy of Child Psychiatry, Seattle, WA.
- Cadman, D., Boyle, M. H., Offord, D. R., Szatmari, P., Rae-Grant, N. I., Crawford, T., & Byles, J. (1987). Chronic illness and functional limitation in Ontario children: Findings of the Ontario Child Health Study. *Canadian Medical Association Journal*, **137**, 761–767.
- Carlson, G. A., & Cantwell, D. P. (1982). Suicidal behavior and depression in children and adolescents. *Journal of the American Academy of Child Psychiatry*, **21**, 361–368.
- Centers for Disease Control. (1985). *Suicide surveillance*. Atlanta, GA: US Department of Health and Human Services.
- Choquet, M., Facy, F., & Davidson, F. (1980). Suicide and attempted suicide among adolescents in France. In R. Farmer & S. Hirsch (Eds.), *The suicide syndrome* (pp. 73–89). London: Croom Helm Ltd.
- Christoffel, K. K., Marcus, D., Sagerman, S., & Bennett, S. (1988). Adolescent suicide and suicide attempts: A population study. *Pediatric Emergency Care*, **4**, 32–40.
- Cohen-Sandler, R. (1982). *Interpersonal problem-solving skills of suicidal and nonsuicidal children: Assessment and treatment*. Unpublished manuscript, American University, Washington, DC.
- Cohen-Sandler, R., Berman, A. L., & King, R. A. (1982a). Life stress and symptomatology: Determinants of suicidal behavior in children. *Journal of the American Academy of Child Psychiatry*, **21**, 178–186.
- Cohen-Sandler, R., Berman, A. L., & King, R. A. (1982b). A follow-up study of hospitalized suicidal children. *Journal of the American Academy of Child Psychiatry*, **21**, 398–403.
- Compas, B. E. (1987). Stress and life events during childhood and adolescence. *Clinical Psychology Review*, **7**, 275–302.
- Corder, B. F., Shorr, W., & Corder, R. F. (1974). A study of social and psychological characteristics of adolescent suicide attempters in an urban, disadvantaged area. *Adolescence*, **9**, 1–16.
- Crumley, F. E. (1979). Adolescent suicide attempts. *Journal of the American Medical Association*, **241**, 2404–2407.
- Curran, D. K. (1987). *Adolescent suicidal behavior*. Washington, DC: Hemisphere.
- Deykin, E. Y., Alpert, J. T., & McNamara, J. J. (1985). A pilot study of the effect of exposure to child abuse and neglect on adolescent suicidal behavior. *American Journal of Psychiatry*, **142**, 1299–1303.
- Deykin, E. Y., Hsieh, C. C., Joshi, N., & McNamara, J. J. (1986). Adolescent suicidal and self-destructive behavior: Results of an intervention study. *Journal of Adolescent Health Care*, **7**, 88–95.
- Dorpat, T. L., Jackson, J. K., & Ripley, H. S. (1965). Broken homes and attempted and completed suicide. *Archives of General Psychiatry*, **12**, 213–216.
- Dorpat, T. L., & Ripley, H. S. (1960). A study of suicide in the Seattle area. *Comprehensive Psychiatry*, **1**, 349–359.
- Eisenberg, L. (1986). Does bad news about suicide beget bad news. *New England Journal of Medicine*, **315**, 705–707.
- Ellis, T. E. (1986). Toward a cognitive therapy of suicidal individuals. *Professional Psychology: Research and Practice*, **17**, 125–130.
- Friedman, R. C., Corn, R., Aronoff, M. S., Hurt, S. W., & Clarkin, J. F. (1984). The seriously suicidal adolescent: Affective and character pathology. In H. S. Sudak, A. B. Ford, & N. B. Rushforth (Eds.), *Suicide in the young* (pp. 209–226). Boston: John Wright PSG, Inc.
- Friedman, R. C., Corn, R., Hurt, S. W., Fibel, B., Schulick, J., & Swirsky, S. (1984). Family history of illness in the seriously suicidal adolescent: A life-cycle approach. *American Journal of Orthopsychiatry*, **54**, 390–397.

- Garfinkel, B. D., Froese, A., & Hood, J. (1982). Suicide attempts in children and adolescents. *American Journal of Psychiatry*, **139**, 1257-1261.
- Gispert, M., Davis, M. S., Marsh, L., & Wheeler, K. (1987). Adolescent suicide repeaters: Factors in evaluation. *Hospital and Community Psychiatry*, **38**, 390-393.
- Gispert, M., Wheeler, K., Marsh, L., & Davis, M. S. (1985). Suicidal adolescents: Factors in evaluation. *Adolescence*, **20**, 753-762.
- Goldacre, M., & Hawton, K. (1985). Repetition of self-poisoning and subsequent death in adolescents who take overdoses. *British Journal of Psychiatry*, **146**, 395-398.
- Goldberg, I. D., Regier, D. A., McAnaney, T. K., Pless, I. B., & Roghmann, K. J. (1978). The role of the pediatrician in the delivery of mental health services to children. *Pediatrics*, **63**, 898-909.
- Gould, M. S., & Shaffer, D. (1986). The impact of suicide in television movies: Evidence of imitation. *New England Journal of Medicine*, **315**, 690-694.
- Green, A. H. (1978). Self-destructive behavior in battered children. *American Journal of Psychiatry*, **135**, 579-582.
- Greuling, J. W., & DeBlassie, R. R. (1980). Adolescent suicide. *Adolescence*, **15**, 589-601.
- Haider, I. (1968). Suicidal attempts in children and adolescents. *British Journal of Psychiatry*, **114**, 1113-1134.
- Harkavy-Friedman, J. M., Asnis, G. M., Boeck, M., & DiFiore, J. (1987). Prevalence of specific suicidal behaviors in a high school sample. *American Journal of Psychiatry*, **144**, 1203-1206.
- Hart, K., Spirito, A., & Overholser, J. (1988). *Attributional style in adolescent suicide attempters*. Manuscript submitted for publication.
- Hawton, K. (1986). *Suicide and attempted suicide among children and adolescents*. Beverly Hills, CA: Sage.
- Hawton, K., Cole, D., O'Grady, J., & Osborn, M. (1982). Motivational aspects of deliberate self-poisoning in adolescents. *British Journal of Psychiatry*, **14**, 286-291.
- Hawton, K., & Goldacre, M. (1982). Hospital admissions for adverse effects of medicinal agents (mainly self-poisoning) among adolescents in the Oxford region. *British Journal of Psychiatry*, **141**, 166-170.
- Hawton, K., O'Grady, J., Osborn, M., & Cole, D. (1982a). Adolescents who take overdoses: Their characteristics, problems, and contacts with helping agencies. *British Journal of Psychiatry*, **140**, 118-123.
- Hawton, K., Osborn, M., O'Grady, J., & Cole, D. (1982b). Classification of adolescents who take overdoses. *British Journal of Psychiatry*, **140**, 124-131.
- Headlam, H. R., Goldsmith, J., Hamenson, I. B., & Rauh, J. L. (1979). Demographic characteristics of adolescents with self-poisoning. Survey of 235 instances in Cincinnati, OH. *Clinical Pediatrics*, **18**, 147-154.
- Hill, W. H. (1984). Intervention and postvention in schools. In H. Sudak, A. Ford, & N. Rushforth (Eds.), *Suicide in the young* (pp. 407-416). Boston: John Wright.
- Jacobs, J. (1971). *Adolescent suicide*. New York: Wiley-Interscience.
- Jessor, R. (1984). Adolescent development and behavioral health. In J. D. Matarazzo, S. M. Weiss, J. A. Herd, N. E. Miller, & S. M. Weiss (Eds.), *Behavioral health: A handbook of health enhancement and disease prevention* (pp. 69-90). New York: Wiley-Interscience.
- Kaminer, Y., & Robbins, D. R. (1988). Attempted suicide by insulin overdose in insulin-dependent diabetic adolescents. *Pediatrics*, **81**, 526-528.
- Kazdin, A. E., French, N. H., Unis, A. S., Esveltd-Dawson, K., & Sherrick, R. B. (1983). Hopelessness, depression and suicidal intent among psychiatrically disturbed children. *Journal of Consulting and Clinical Psychology*, **51**, 504-510.
- Khan, A. V. (1987). Heterogeneity of suicidal adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, **26**, 92-96.
- Kienhorst, C. W. M., Wolters, W. H. G., Diekstra, R. F. W., & Otte, E. (1987). A study of the frequency of suicidal behavior in children aged 5 to 14. *Journal of Child Psychology and Psychiatry*, **28**, 153-165.
- Korella, K. (1972). Teenage suicide gestures: A study of suicidal behavior among high school students. *Dissertation Abstracts International*, **32**, 5039A.
- Kosky, R. (1983). Childhood suicidal behavior. *Journal of Child Psychology and Psychiatry*, **24**(3), 457-468.
- Kotila, L., & Lonnquist, J. (1988). Adolescent suicide attempts: Sex differences predicting suicide. *Acta Psychiatrica Scandinavica*, **77**, 264-270.

- Lamb, F., & Dunne-Maxim, K. (1987). Postvention in schools: Policy and process. In E. J. Dunne, T. L. McIntosh, & K. Dunne-Maxim (Eds.), *Suicide and its aftermath: Understanding and counseling the survivors* (pp. 245-260). New York: W. W. Norton.
- Lawler, R. H., Nakielnny, W., & Wright, N. A. (1963). Suicidal attempts in children. *Canadian Medical Association Journal*, **89**, 751-754.
- Lester, D., Beck, A. T., & Mitchell, B. (1979). Extrapolation from attempted suicides to completed suicides: A test. *Journal of Abnormal Psychology*, **88**, 78-80.
- Levenson, M., & Neuringer, C. (1971). Problem-solving behavior in suicidal adolescents. *Journal of Consulting and Clinical Psychology*, **37**, 433-436.
- Levin, L., & Schonberg, K. (1987). Familial violence among adolescents who attempt suicide. *Society of Adolescent Medicine*. (Abstract, p. 10).
- Lewinsohn, P. M. (1975). The behavioral study and treatment of depression. In M. Hersen, R. M. Eisler, & R. M. Miller (Eds.), *Progress in behavior modification* (pp. 19-64). New York: Academic Press.
- Litt, I. F., Cuskey, W. R., & Rudd, S. (1983). Emergency room evaluation of the adolescent who attempts suicide: Compliance with follow-up. *Journal of Adolescent Health Care*, **4**, 106-108.
- Luscomb, R. L., Clum, R. A., & Patsiakos, A. T. (1980). Mediating factors in the relationship between life stress and suicide attempting. *Journal of Nervous and Mental Disease*, **168**, 644-650.
- Marks, P. A., & Haller, D. L. (1977). Now I lay me down for keeps: A study of adolescent suicide attempts. *Journal of Clinical Psychology*, **33**, 390-400.
- Mattson, A., Seese, L. R., & Hawkins, J. W. (1969). Suicidal behavior as a child psychiatric emergency. *Archives of General Psychiatry*, **20**, 100-109.
- McCulloch, J. W., & Philip, A. E. (1972). *Suicidal behavior*. Oxford: Pergamon Press.
- McIntire, M. S., & Angle, C. R. (1970). The taxonomy of suicide as seen in poison control centers. *Pediatric Clinics of North America*, **17**, 697-706.
- McIntire, M. S., & Angle, C. R. (1971). Suicide as seen in poison control centers. *Pediatrics*, **48**, 914-927.
- McIntire, M. S., Angle, C. R., & Schlicht, M. L. (1980). Suicide and self-poisoning in pediatrics. *Resident and Staff Physician*, **26**, 72-85.
- McIntire, M. S., Angle, C. R., Wikoff, R. L., & Schlicht, M. L. (1977). Recurrent adolescent suicidal behavior. *Pediatrics*, **60**, 605-608.
- McKenry, P. C., Tishler, C. L., & Kelley, C. (1982). Adolescent suicide: A comparison of attempters and nonattempters in an emergency room population. *Clinical Pediatrics*, **21**, 266-270.
- McKenry, P. C., Tishler, C. L., & Kelley, C. (1983). The role of drugs in adolescent suicide attempts. *Suicide and Life-Threatening Behavior*, **13**, 166-175.
- McLeavey, B. C., Daly, R. J., Murray, C. M., O'Riordan, J., & Taylor, M. (1987). Interpersonal problem-solving deficits in self-poisoning patients. *Suicide and Life-Threatening Behavior*, **17**, 33-49.
- Mehr, M., Zeltzer, L. K., & Robinson, R. (1981). Continued self-destructive behaviors in adolescent suicide attempters: Part I. *Journal of Adolescent Health Care*, **1**, 269-274.
- Mehr, M., Zeltzer, L. K., & Robinson, R. (1982). Continued self-destructive behaviors in adolescent suicide attempters: Part II. *Journal of Adolescent Health Care*, **2**, 182-187.
- Menninger, K. A. (1938). *Man against himself*. New York: Harcourt, Brace & World.
- Miller, M. L., Chiles, J. A., & Barnes, V. E. (1982). Suicide attempters within a delinquent population. *Journal of Consulting and Clinical Psychology*, **50**, 491-498.
- Minkoff, K., Bergman, E., Beck, A. T., & Beck, R. (1973). Hopelessness, depression, and attempted suicide. *American Journal of Psychiatry*, **130**, 455-459.
- Morgan, H. G., Burns-Cox, C. J., Pocock, H. J., & Pottle, S. (1975). Deliberate self-harm: Clinical and socioeconomic characteristics of 368 patients. *British Journal of Psychiatry*, **127**, 564-574.
- Morrison, G. C., & Collier, J. G. (1969). Family treatment approaches to suicidal children and adolescents. *Journal of the American Academy of Child Psychiatry*, **8**, 140-153.
- Motto, J. A. (1984). Suicide in male adolescents. In H. S. Sudak, A. B. Ford, & N. B. Rushforth (Eds.), *Suicide in the young* (pp. 227-244). Boston: John Wright PSG, Inc.
- Nardini Maillard, D., & Ladman, F. G. (1980). The results of a follow-up study of suicidal adolescents. *Journal of Adolescence*, **3**, 253-260.
- Neuringer, C. (1964). Rigid thinking in suicidal individuals. *Journal of Consulting Psychology*, **28**, 54-58.

- Orbach, I., Rosenheim, E., & Hary, E. (1987). Some aspects of cognitive functioning in suicidal children. *Journal of the American Academy of Child and Adolescent Psychiatry*, **26**, 181-185.
- Otto, U. (1972). Suicidal acts by children and adolescents: A follow-up study. *Acta Psychiatrica Scandinavica Supplement*, **233**, 5-123.
- Paerregaard, G. (1975). Suicide among attempted suicide: A 10-year follow-up. *Suicide*, **5**, 140-144.
- Patsiokas, A. T., Clum, G. A., & Luscomb, R. L. (1979). Cognitive characteristics of suicide attempters. *Journal of Consulting and Clinical Psychology*, **47**, 478-484.
- Paulson, M. J., Stone, D., & Sposto, R. (1978). Suicide potential and behavior in children ages 4-12 years. *Suicide and Life-Threatening Behavior*, **8**, 225-242.
- Paykel, E. S. (1980). Recent life events and attempted suicide. In R. Farmer, & S. Hirsch (Eds.), *The suicide syndrome* (pp. 105-115). London: Croom Helm Ltd.
- Paykel, E. S., Prusoff, B. A., & Myers, J. K. (1975). Suicide attempts and recent life events: A controlled comparison. *Archives of General Psychiatry*, **32**, 327-333.
- Perrah, M., & Wichman, H. (1987). Cognitive rigidity in suicide attempters. *Suicide and Life-Threatening Behavior*, **17**, 251-255.
- Peterson, L. G., Peterson, M., O'Shanick, G. J., & Swann, A. (1985). Self-inflicted gunshot wounds: Lethality of method versus intent. *American Journal of Psychiatry*, **142**, 228-231.
- Pfeffer, C. R., Plutchik, R., & Mizruchi, M. S. (1983). Suicidal and assaultive behavior in children: Classification, measurement, and interrelations. *American Journal of Psychiatry*, **140**, 154-157.
- Pfeffer, C. R., Solomon, G., Plutchik, R., Mizruchi, M. S., & Werner, A. (1982). Suicidal behavior in latency-age psychiatric patients: A replication and cross-validation. *Journal of the American Academy of Child Psychiatry*, **21**, 564-569.
- Phillips, D. P. (1979). Suicide, motor vehicle fatalities and the mass media: Evidence toward a theory of suggestion. *American Journal of Sociology*, **84**, 1150-1174.
- Phillips, D. P., & Carstensen, L. L. (1986). Clustering of teenage suicides after television news stories about suicide. *New England Journal of Medicine*, **315**, 685-89.
- Phillips, D. P., & Paight, D. J. (1987). The impact of televised movies about suicide: A replicative study. *New England Journal of Medicine*, **317**, 809-811.
- Reuben, N., Boeck, M., & Kurzon, M. (1987, March). *Relation between suicidal intent, depression, and disposition in adolescent suicide attempters*. Paper presented at the Society of Adolescent Medical Conference, Seattle, WA.
- Rich, C. L., Fowler, R. C., Fogarty, L. A., & Young, D. (1988). San Diego Suicide Study III. Relationships between diagnoses and stressors. *Archives of General Psychiatry*, **45**, 589-592.
- Robbins, D. R., & Alessi, N. E. (1985). Depressive symptoms and suicidal behavior in adolescents. *American Journal of Psychiatry*, **142**, 588-592.
- Robbins, D., & Conroy, R. C. (1983). A cluster of adolescent suicide attempts. Is suicide contagious? *Journal of Adolescent Health Care*, **3**, 253-255.
- Rockett, I., Spirito, A., Fritz, G., & Riggs, S. (1988). *A trauma center study of adolescent suicide attempters and motor vehicle crash victims*. Manuscript submitted for publication.
- Rohn, R. D., Sarles, R. M., Kenny, T. J., Reynolds, B. J., & Heald, F. P. (1977). Adolescents who attempt suicide. *The Journal of Pediatrics*, **90**(4), 626-638.
- Rosenberg, M. L., Smith, J. C., Davidson, L. E., & Conn, J. M. (1987). The emergence of youth suicide: An epidemiologic analysis and public health perspective. *Annual Review of Public Health*, **8**, 417-427.
- Ross, C. P., & Motto, J. A. (1984). Group counseling for suicidal adolescents. In H. S. Sudak, A. B. Ford, & N. B. Rushforth (Eds.), *Suicide in the young* (pp. 367-392). Boston: John Wright PSG, Inc.
- Rotheram, M. J. (1987). Evaluation of imminent danger for suicide among youth. *American Journal of Orthopsychiatry*, **57**, 102-110.
- Ryan, N. D., Puig-Antich, J., Ambrosini, P., Rabinovich, H., Robinson, D., Nelson, B., Iyengar, S., & Twomey, J. (1987). The clinical picture of major depression in children and adolescents. *Archives of General Psychiatry*, **44**, 854-861.
- Sathyavathi, K. (1975). Suicide among children in Bangalore. *Indian Journal of Pediatrics*, **42**, 149-157.
- Schotte, D. E., & Clum, G. A. (1987). Problem-solving skills in suicidal psychiatric patients. *Journal of Consulting and Clinical Psychology*, **55**, 49-54.

- Schrieber, T. J., & Johnson, R. L. (1986). The evaluation and treatment of adolescent overdoses in an adolescent medical service. *Journal of the National Medical Association*, **78**, 101-108.
- Shaffer, D. (1974). Suicide in childhood and early adolescence. *Journal of Child Psychology and Psychiatry*, **15**, 275-291.
- Shaffer, D. (1982). Diagnostic considerations in suicidal behavior in children and adolescents. *Journal of American Academy of Child Psychiatry*, **21**, 414-416.
- Shaffer, D., & Bacon, K. (1986, June). *A critical review of prevention and intervention efforts in suicide with particular reference to youth suicide*. Paper presented at the Prevention and Intervention Working Group of the HHS Task Force on Youth Suicide, Oakland, CA.
- Shafii, M., Carrigan, S., Whittinghill, J. R., & Derrick, A. (1985). Psychological autopsy of completed suicide in children and adolescents. *American Journal of Psychiatry*, **142**, 1061-1064.
- Slap, G., Vorters, D., Chaudhuri, S., & Centor, R. (1988, March). *Risk factors for adolescent suicide attempters*. Poster presented at the Society of Adolescent Medicine, New York.
- Smith, K., Conroy, R. W., & Ehler, B. D. (1984). Lethality of Suicide Attempt Rating Scale. *Suicide and Life-Threatening Behavior*, **14**, 215-242.
- Smith, K., & Crawford, S. (1986). Suicidal behavior among "normal" high school students. *Suicidal and Life-Threatening Behavior*, **16**, 313-325.
- Spirito, A., Brown, L., Overholser, J., & Fritz, G. (1988). *Use of the Risk-Rescue Rating Scale with adolescents: A cautionary note*. Manuscript submitted for publication.
- Spirito, A., Overholser, J., Hart, K., & Halverson, J. (1988). *The relationship of social skills and depression in adolescent suicide attempters*. Manuscript submitted for publication.
- Spirito, A., Overholser, J., & Stark, L. J. (in press). Common problems and coping styles II: Findings with adolescent suicide attempters. *Journal of Abnormal Child Psychology*.
- Spirito, A., Stark, L. J., Fristad, M., Hart, K., & Owens-Stively, J. (1987). Adolescent suicide attempters hospitalized on a general pediatrics floor. *Journal of Pediatric Psychology*, **12**, 171-189.
- Spirito, A., Williams, C., Stark, L. J., & Hart, K. (1988). The Hopelessness Scale for Children: Psychometric properties and clinical utility with normal and emotionally disturbed adolescents. *Journal of Abnormal Child Psychology*, **16**, 445-458.
- Stanley, E. J., & Barter, J. T. (1970). Adolescent suicidal behavior. *American Journal of Orthopsychiatry*, **40**, 87-96.
- Stevenson, E. K., Hudgens, R. W., Held, C. P., Meredith, C. H., Hendricks, M. E., & Carr, D. L. (1972). Suicidal communication by adolescents: Study of two matched groups of 60 teenagers. *Diseases of the Nervous System*, **33**, 112-122.
- Taylor, E. A., & Stansfeld, S. A. (1984a). Children who poison themselves I. A clinical comparison with psychiatric controls. *British Journal of Psychiatry*, **145**, 127-132.
- Taylor, E. A., & Stansfeld, S. A. (1984b). Children who poison themselves II. Prediction of attendance for treatment. *British Journal of Psychiatry*, **145**, 132-135.
- Teicher, J. D. (1979). Suicide and suicide attempts. In J. D. Noshpitz (Ed.), *Basic Handbook of Child Psychiatry* (Vol. 2, pp. 685-697). New York: Basic Books.
- Tishler, C. L., & McKenry, P. C. (1982). Parental negative self- and adolescent suicide attempts. *Journal of the American Academy of Child Psychiatry*, **21**, 404-408.
- Tishler, C. L., McKenry, P. C., & Morgan, K. C. (1981). Adolescent suicide attempts: Some significant factors. *Suicide and Life-Threatening Behavior*, **11**, 86-92.
- Tolan, P., Ryan, K., & Jaffe, C. (1988). Adolescents' mental health service use and provider, process, and recipient characteristics. *Journal of Clinical Child Psychology*, **17**, 229-236.
- Topol, P., & Reznikoff, M. (1982). Perceived peer and family relationships, hopelessness and locus of control as factors in adolescent suicide attempts. *Suicide and Life-Threatening Behavior*, **12**(3), 141-150.
- Trautman, P. D. (1987, October). *Adolescent suicide attempters: Deficits in cognitive style or anhedonia?* Poster presented at the Annual Meeting of the American Academy of Child and Adolescent Psychiatry, Los Angeles, CA.
- Trautman, P. D., & Rotheram, M. J. (1987, October). *Referral failure among adolescent suicide attempters*. Poster presented at the Annual Meeting of the American Academy of Child Psychiatry, Los Angeles, CA.
- Triolo, S. J., McKenry, P. C., Tishler, C. L., & Blyth, D. A. (1984). Social and psychological discriminants of adolescent suicide: Age and sex differences. *Journal of Early Adolescence*, **4**, 239-251.

- Tuckman, J., & Connon, H. E. (1962). Attempted suicide in adolescents. *American Journal of Psychiatry*, **119**, 228-232.
- Walker, D. K., Gortmaker, S. L., & Weitzman, M. (1981). *Chronic illness and psychosocial problems among children in Genesee County*. Boston, MA: Community Child Health Studies, Harvard School of Public Health.
- Walker, W. L. (1980). Intentional self-injury in school age children: A study of fifty cases. *Journal of Adolescence*, **3**, 217-228.
- Weisman, A., & Worden, W. (1972). Risk-rescue rating in suicide assessment. *Archives of General Psychiatry*, **26**, 553-560.
- Wenz, F. V. (1979). Sociological correlates of alienation among adolescent suicide attempts. *Adolescence*, **14**, 19-30.
- Whitlock, F. A. (1986). Suicide and physical illness. In A. Roy (Ed.), *Suicide* (pp. 151-170). Baltimore: Williams & Wilkins.
- Williams, C., & Lyons, C. M. (1976). Family interaction and adolescent suicidal behavior: A preliminary investigation. *Australian and New Zealand Journal of Psychiatry*, **10**, 243-252.
- Williams, C. L., Davidson, J. A., & Montgomery, I. (1980). Impulsive suicidal behavior. *Journal of Clinical Psychology*, **36**, 90-94.
- Withers, L. E., & Kaplan, D. W. (1987). Adolescents who attempt suicide. A retrospective clinical chart review of hospitalized patients. *Professional Psychology: Research and Practice*, **18**, 391-393.
- Yusin, A., Sinay, R., & Nihira, K. (1972). Adolescents in crisis: Evaluation of a questionnaire. *American Journal of Psychiatry*, **129**, 574-577.
- Zich, J. M. (1984). A reciprocal control approach to the treatment of repeated parasuicide. *Suicide and Life-Threatening Behavior*, **14**, 36-51.